12-19-2003

UM starts new NASA science mission

University of Montana--Missoula. Office of University Relations

The University of Montana
UNIVERSITY RELATIONS • MISSOULA, MT 59812 • 406-243-2522 • FAX: 406-243-4520

NEWS RELEASE

Dec. 19, 2003

Contact: Steve Running, director, UM Numerical Terradynamic Simulation Group, (406) 243-6311.

UM STARTS NEW NASA SCIENCE MISSION

MISSOULA —

A University of Montana research group that designs software for NASA environmental satellites recently earned a major new mission from the space agency.

UM's Numerical Terradynamic Simulation Group will produce software for NASA's Hydrosphere State Mission. Steve Running, NTSG director, said the mission's HYDROS satellite will study the Earth's freeze-thaw transition and soil moisture on a daily basis.

Running said his team will write code for the freeze-thaw portion of the mission and will be responsible for distributing the resulting data once the satellite is in orbit. He said UM should receive about $5 million for this work during the lifetime of the mission from 2004 to 2012. The HYDROS satellite is tentatively set to launch in 2009.

"This really takes us into the next generation of remote-sensing research," Running said. "We thought this Earth-monitoring product up from scratch, and we are going to produce it here and distribute it here from the beginning. This will be the most original work our lab has ever done."

He said studying the Earth's freeze-thaw characteristic on a global scale should lead to improved weather forecasting, better flood prediction and a keener understanding of how spring thaws trigger the growing season.

-more-

HYDROS will be a radar satellite, Running said, so it will be able to see through clouds. In orbit the satellite and its radar dish will resemble a huge, rotating, wire umbrella. At launch the 100-pound radar dish will be about 1.5 feet wide, but it will unfold to a width of 18 feet in space.

Running said he and John Kimball, a faculty member based at UM's Flathead Lake Biological Station, will be the co-investigators on the project.

Running said he came up with the idea to study the spring-thaw characteristic from space about eight years ago while reading papers by NASA Jet Propulsion Laboratory scientists. They had noted that radar data from frozen and non-frozen ground looks markedly different.

"I realized this could be a very important land-surface monitor if we could do it every day," he said. "So that's the little epiphany I had. It's probably the most cleanly identified mental discovery of my life."

The other half of the HYDROS satellite science -- the soil moisture component -- will be handled by scientists at Princeton University, Goddard Space Flight Center and the Massachusetts Institute of Technology. "So we are in some pretty fancy company," Running said.

Running's lab already has produced software for two other NASA satellites, Terra and Aqua, which are part of NASA's Earth Observing System. EOS is designed to further science by making long-term observations of the land surface, biosphere, atmosphere and oceans. UM crafted software for MODIS -- the Moderate Resolution Imaging Spectroradiometer -- which was the primary sensor on both satellites.

Terra is four years into its six-year mission, and Aqua was launched nearly three years ago. Running said his group's work on HYDROS will ramp up as the science on the EOS missions nears conclusion.

"HYDROS is a big new frontier for science at UM," he said. "We will literally be half the science for this new mission. We will be doing more original work than we did for MODIS, and we will have a higher level of autonomy than we even had in EOS."

###

CBS
Local, dailies, environmental, select national
NTSGmiss.rl